

Claims

1. A cassette intended to be inserted into an
5 irrigation or aspiration machine used in endoscopy
comprising an irrigation tube (1i) or an
aspiration tube (1a) and a support (5) furnished
with one (3i) or with two inlet plugs (3i, 3a),
and with one (7i) or with two outlet plugs (7i,
10 7a), the tube or the two tubes forming an elbow
(9i, 9a) for engaging with the inlet and outlet
plug or the two inlet and outlet plugs in a
respectively incoming (E) and outgoing (S)
direction of flow and forming a segment of
15 irrigation (11i) or of aspiration (11a) pumping in
the incoming direction (E) of flow, characterized
in that the support (5) comprises a T guide (13)
shaped to the head of the T so as to protect the
elbow (9i, 9a) of each tube (1i, 1a) and shaped
20 along the body of the T as a slot (19) guiding the
tube or the two tubes in the outgoing direction of
flow (S), the T guide (13) running between the
inlet plug or the two inlet plugs (3i, 3a) so as
to form the segment of irrigation (11i) or of
25 aspiration (11a) pumping on either side of the
slot (19) between each inlet plug (3i, 3a) and the
head of the T.
2. The cassette as claimed in claim 1, characterized
30 in that the head of the T comprises a protective
hood (14) for the elbow (9i, 9a) of each tube.
3. The cassette as claimed in claim 1 or 2,
characterized in that the head of the T comprises
35 a double rounding (17) for guiding the elbow (9i,
9a) of each tube.
4. The cassette as claimed in claim 1, characterized
in that the T guide (13) is fixed to a housing

- (21) integrated with the support (5) and provided with one (23i) or with two inlet channels (23i, 23a) open at an inlet end (15i, 15a) and emerging at an opposite end via the inlet plug (3i) or the inlet plugs (3i, 3a) so as to ensure communication with the tube (1i) or the two tubes (1i, 1a) in the incoming direction of flow (E).
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5. The cassette as claimed in claim 4, characterized in that the housing (21) is provided with a third inlet channel (25) open at one end (26) and disposed bypass-wise with respect to the inlet channel (23a) communicating with the aspiration tube (1a) so as to emerge, at an opposite end, via the inlet plug (3a) ensuring communication with the aspiration tube (1a).
 6. The cassette as claimed in claim 5, characterized in that the inlet channel (23a) communicating with the aspiration tube (1a) and the third inlet channel (25) mounted bypass-wise open out, at the opposite end to the inlet plug (3a) ensuring communication with the aspiration tube (1a), into a chamber (31) integrated with the housing and receiving two complementary aspiration tubes (33, 35) engaging with these two channels (23a, 25) while being disposed some distance from a back wall (36) of the chamber (31) so as to be compressed against this back wall (36) in a position of obstruction of this inlet channel (23a) communicating with the aspiration tube (1a) or of this third inlet channel (25).
 7. The cassette as claimed in claim 4, 5 or 6, characterized in that the housing (21) is provided with one (29i) or with two outlet channels (29i, 29a) open at an outlet end and emerging at an opposite end via the outlet plug (7i) or the outlet plugs (7i, 7a) so as to ensure

communication with the tube (1i) or the two tubes (1i, 1a) in the outgoing direction of flow (S).

- 5 8. The cassette as claimed in claim 7, characterized in that the outlet channel (29i) or the outlet channels (29i, 29a) are carried by supports (27) extending in a plane perpendicular to a plane of the housing so as to be raised up with respect to the inlet channels (23i, 23a, 25).
- 10 9. The cassette as claimed in claim 7 or 8, characterized in that the housing (21) is provided with a communication pathway (28) between the outlet channel (29i) communicating with the
- 15 irrigation tube (1i) and the inlet channel (23a) communicating with the aspiration tube (1a) or the third inlet channel (25) mounted bypass-wise with respect to the latter.
- 20 10. The cassette as claimed in claim 9, characterized in that the communication pathway (28) is ensured by a tube disposed in a chamber (43) and some distance from a back wall (45) of this chamber so as to be compressed against this back wall in a
- 25 position of obstruction of this communication pathway.
- 30 11. The cassette as claimed in any one of claims 1 to 10, characterized in that the support (5), the T guide (13) with the double rounding (17) at the head of the T and the slot (21) of the body of the T, the housing integrated with the support (21) provided with the inlet channel (23i) or with the inlet channels (23i, 23a), the third inlet channel
- 35 (25), the inlet plug (3i) or the inlet plugs (3i, 3a), the outlet plug (7i) or the outlet plugs (7i, 7a) and the supports (27) are in one piece of injection-molded plastic.

12. An irrigation and aspiration machine used in endoscopy, intended to receive a cassette as claimed in one of claims 1 to 11, comprising a peristaltic irrigation pump (51i) with shoe (53i) mounted in correspondence with wheel (54i) with rollers (55i), one (53i) on a chassis (61) and the other (54) on a carriage (63) moveable with respect to the chassis in a direction of translation (T) between a rest position in which the shoe (53i) is unclamped with respect to the rollers (55i) and a pumping position in which the shoe (53i) is reclamped with respect to the rollers (55i) and a cassette holder (65) mounted on the chassis (61) so as to extend in a plane (P) perpendicular to the direction of translation (T) and passing between the shoe (53i) and the wheel (54i) with rollers (55i) of the irrigation pump, characterized in that it comprises a peristaltic aspiration pump (51a) with shoe (53a) mounted in correspondence with wheel (54a) with rollers (55a), one (53a) on the chassis (61) and the other (54a) on the carriage (63) so as to unclamp or reclamp said shoe (53a) with respect to said rollers (55a) in the direction of translation (T) upon the unclamping or reclamping of the shoe (53i), with respect to the rollers (55i) of the peristaltic irrigation pump (51i) in the rest position or the pumping position, the plane (P) in which the cassette holder (65) extends passing likewise between the shoe (53a) and the wheel (54a) with rollers (55a) of the peristaltic aspiration pump.
13. The irrigation and aspiration machine with cassette as claimed in claim 12, characterized in that the cassette holder (65) is mounted moveably with respect to the chassis (61) in the direction of translation (T) so as to be driven in translation by the carriage (63) when the latter

is displaced from the rest position to the pumping position.

- 5 14. The irrigation and aspiration machine with cassette as claimed in claim 12, characterized in that the shoes (53i, 53a) of the peristaltic irrigation (51i) and aspiration (51a) pumps are mounted moveably with respect to the chassis (65) in the direction of translation (T).
- 10 15. The irrigation and aspiration machine with cassette as claimed in claim 12 or 13, characterized in that the cassette holder (65) is mounted moveably with respect to the chassis (61) so as to be displaced parallel to the plane (P) perpendicular to the direction of translation (T), between a cassette insertion position where the cassette holder (65) is close to the shoes (53i, 53a) and wheels (54i, 54a) with rollers of the peristaltic irrigation (51i) and aspiration (51a) pumps and a cassette ejection position where the cassette holder (65) is away from said shoes and said wheels with rollers.
- 20 16. The irrigation and aspiration machine with cassette as claimed in claim 12, characterized in that it comprises air pressure sensors communicating with air pressure plugs (95) carried by the moveable carriage (63).
- 25 17. The irrigation and aspiration machine with cassette as claimed in claim 15, characterized in that the cassette holder (65) is provided with a means of locking (73) mounted pivotably with respect to the cassette holder (65) so as to be actuated by an abutment (75) fixed to the chassis (63) and pivot with respect to the cassette holder (65) when the latter displaces parallel to the plane (P) perpendicular to the direction of
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translation (T), from the cassette insertion position to the cassette ejection position.

- 5 18. The irrigation and aspiration machine with cassette as claimed in claim 12, characterized in that the carriage (63) carries two (67a, 69a) or three (71) shutters moveable with respect to the carriage (63) in the direction of translation (T).
- 10 19. The irrigation and aspiration machine with cassette as claimed in claim 12, characterized in that the carriage (63) carries cassette recognition fingers (77) moveable with respect to the carriage in the direction of translation (T).
- 15 20. The irrigation and aspiration machine with cassette as claimed in claim 15, characterized in that it comprises a means of centering (79) mounted on the carriage (63) so as to be displaced with the carriage (63) in the direction of translation (T) from the rest position to the pumping position and after the cassette holder has come near to the shoes (53i, 53a) of the two irrigation and aspiration pumps in the cassette insertion position.
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